

REMARKS

The Office Action mailed January 25, 2008 has been carefully considered. Within the Office Action Claims 1-32 have been rejected. The Applicants have amended Claims 1, 5, 9, 25-28, and 30-32 and have cancelled Claims 21-24, and 29. The Applicants reserve the right to further pursue the cancelled claims in a continuation and/or divisional application as well as for appeal purposes. In addition, the Applicants have added new Claim 33. Reconsideration in view of the following remarks is respectfully requested.

Rejection under U.S.C. § 102

Claims 1, 4-6, 8-11, 13-16, 18-25 and 28-31 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent Publication No. 2004/0009459 to Anderson et al. (hereinafter “Anderson”). The Applicants respectfully traverse.

According to the M.P.E.P., a claim is anticipated under 35 U.S.C. § 102(a), (b) and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Applicants’ specification describes a device that includes an interface member including a material and a manipulandum movable in a degree of freedom, whereby the manipulandum is able to penetrate the material having a density that can be changed. A sensor is configured to output a position signal based on the position of the manipulandum as it penetrates the material and an actuator outputs haptic feedback by varying a density of the material based on the position signal. (Specification, Abstract).

In contrast, Anderson describes a force feedback mechanism, as shown in Figure 14. The force feedback mechanism consists of an encoder wheel and a force wheel which are positioned

to a fixed frame and are separated by a spaced distance. In operation, a needle is inserted between the encoder wheel and the force wheel through the spaced distance, whereby the encoder wheel turns in response to the longitudinal movement of the needle. The force wheel is coupled to a baffle, whereby the baffle is coupled to a servo motor wheel. Upon the servo motor receiving an activating signal, the servo motor moves the servo motor wheel against the baffle to push the baffle against the force wheel. As a result, the force wheel is pressed against the needle to apply a force feedback to the needle. However there is no disclosure in Anderson of a material that has a selectively variable density. Furthermore, there is absolutely no discussion or disclosure in Anderson of an actuator which changes the density of the material to output a haptic effect to the manipulandum penetrating through the material.

Claim 1 recites, *inter alia*, an interface member including a material of selectively variable density and an actuator configured to change the density of the material within at least a portion of the interface member in response to the position signal, wherein the change in density of the material imparts a haptic effect to the manipulandum.

Claim 9 recites, *inter alia*, a retainer defining an interior in which a material is disposed, the material configured to receive an object moved by the manipulandum and having a selectively variable density; and an actuator coupled to the retainer, the actuator configured to change the density of the material within at least a portion of the interior of the retainer in response to the position signal, wherein the change in density of the material imparts a haptic effect to the manipulandum.

Claim 30 recites, *inter alia*, receiving a position signal via a sensor, the position signal associated with a position of a manipulandum, at least a portion of the manipulandum penetrating a material within an interface member, the material having a selectively variable density; and

adjusting the density of the material within at least a portion of the interface member via an actuator coupled to the sensor, wherein the adjusting of the density imparts a haptic effect onto the manipulandum.

As stated above, Anderson does not disclose a material that has a selectively variable density. Furthermore, there is absolutely no discussion or disclosure in Anderson of an actuator which changes the density of the material to output a haptic effect to the manipulandum penetrating through the material. Instead, Anderson merely describes a wheel assembly and a servomotor which presses the force wheel against the needle to output a force to the needle. For at least these reasons, Anderson does not teach or disclose each and every element in Claims 1, 9, and 33. Accordingly, Claims 1, 9 and 33 are distinguishable from Anderson and thus allowable.

Additionally, the dependent claims are allowable over Anderson for being dependent on allowable base claims 1, 9 and 30.

The First Rejection under 35 U.S.C. § 103

Claims 7 and 32 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable to Anderson in view of U.S. Patent No. 6,921,267 to van Oostrom et al. (hereinafter "Oostrom"). This rejection is respectfully traversed. However, Claims 7 and 32 are dependent claims and are allowable over the cited references for being dependent on allowable base claims 1 and 30. Accordingly, Claims 7 and 32 are allowable.

The Second Rejection under 35 U.S.C. § 103

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Anderson. This rejection is respectfully traversed. However, Claim 12 is a dependent claim and

is allowable over the cited reference for being dependent on allowable base claim 9.

Accordingly, Claim 12 is allowable.

The Third Rejection under 35 U.S.C. § 103

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Anderson in view of U.S. Patent No. 5,682,886 to Delp et al. (hereinafter “Delp”). This rejection is respectfully traversed. However, Claim 17 is a dependent claim and is allowable over the cited reference for being dependent on allowable base claim 9. Accordingly, Claim 17 is allowable.

The Fourth Rejection under 35 U.S.C. § 103

Claims 2-3 and 26-27 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Anderson in view of U.S. Patent No. 6,318,146 to Madsen et al. (hereinafter “Madsen”). This rejection is respectfully traversed. Madsen describes use of glass beads to aid in illumination of the beads in an ultrasound, MRI or CAT scan. (Madsen, Col. 5, Lines 1-19). In fact, Madsen is only directed to multi-imaging of phantom tissue and does not provide any basis as to why haptic effects would be utilized in relation to his invention. Additionally, there is no discussion that the beads in Madsen are for variable density purposes or that compression or expansion of the beads by an actuator would be used to output a haptic effect. Furthermore, combining Madsen’s beads with Anderson’s force-feedback wheel assembly would render Anderson’s assembly inoperable for its intended purpose, because beads could get caught between the force wheel and the needle, thereby disrupting operation of Anderson’s device. Accordingly, there is no apparent reason why one skilled in the art would have the motivation to use the beads in Madsen for haptic effect purposes. Accordingly, Claims 2-3 and 26-27 are not obvious over the combination of Anderson and Madsen.

New Claims


The Applicants have added new Claim 33 to the present application. The Applicants believe that New claims are fully supported by the specification and no new matter has been added. Allowance of new Claim 33 is respectfully requested.

Conclusion

It is believed that this reply places the above-identified patent application into condition for allowance. Early favorable consideration of this reply is earnestly solicited. If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,
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